

NOTES:

- For additional details of Crash Cushion (Type CAT), refer to the manufacturer's installation instructions.
- Crash Cushion (Type CAT) may be used at sites where the sides of the crash cushion would be exposed to opposing directions of travel (bidirectional traffic) or the same direction of travel (unidirectional traffic). For locations where traffic would only be on one side of the CAT system, use the Standard Plan A77N.
- The Crash Cushion Backup is required for all Crash Cushion (Type CAT) installations. This allows the slotted rail elements to slide over the face of the unslotted rail elements.
- For length and type of rolling or barrier the crash cushion is attached to, see Project Plans.
- Both of the 3.43 mm (0.1345") thick slotted rail elements have an attachment plate welded to the back side of one end of each rail element. Attach the welded plate end of the rail elements to Post No. 4 prior to splicing the 2.67 mm (0.1046") thick slotted rail element over the 3.43 mm (0.1345") thick slotted rail element.
- The 2.67 mm (0.1046") thick slotted rail elements have four 19 mm (3/4") diameter holes near one end of the rail elements for the attachment of the spacer channel. Attach this end of the rail elements to Post No. 2.
- Attach steel soil plate to steel foundation tube with 16 mm (5/8") ϕ x 190 mm (7 1/2") hex head bolts with hex nuts (21 mm (7/8") ϕ holes in plate and in two sides of tube to accommodate hex bolts).

- The 150 mm x 200 mm (6" x 8") knockout tube is to be located 100 mm (4") down from top of wood post. Attach the knockout tube to the post with two 10 mm (3/8") lag screws and flat washers.
- Attach strut to Post Nos. 1 and 2 foundation tubes with 16 mm (5/8") ϕ hex head bolts, washers, and hex nuts. Bolts extend through the strut, steel foundation tube and wood posts.
- Do not attach the rail elements to Post Nos. 3, 5 and 6.
- Yellow retroreflective sheeting, as provided by the Crash Cushion (Type CAT) manufacturer, shall be adhered to the rounded end of nose plate. The sheeting shall be consistent with the design pattern and colors of a Type P object marker panel for unidirectional traffic and that of a Type R object marker panel for bidirectional traffic. The sheeting shall be positioned on the end of the nose plate so that it is visible to approaching traffic.
- A 1830 mm (6'-0") length steel foundation tube, TS 203 x 152 x 4.8 (TS 8 x 6 x 3/8"), without a soil plate, may be furnished and installed in place if the 1375 mm (4'-6") length steel foundation tube and soil plate shown. Minimum embedment of the 1830 mm (6'-0") length tube shall be 1750 mm (5'-9"). A 16 mm (5/8") ϕ hex head bolt and nut shall be installed in the hole in 1830 mm (6'-0") length tube to keep the wood post from dropping into the tube.

13 mm x 75 mm x 178 mm
1/2" x 3" x 7"

16 mm (5/8") ϕ hex bolt and nuts to attach post plates
MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
16 mm (5/8") ϕ hex head bolt with hex nut and two washers. Do not attach rail elements to wood blocks or wood post.
135 mm x 185 mm (5/4" x 7 1/4") wood post
Steel plate 460 mm x 610 mm x 6 mm (18" x 24" x 1/4")
Steel foundation tube TS 203 x 152 x 4.8 (TS 8 x 6 x 3/8"), 1375 mm (4'-6") length, See Note 12.
See Note 7

SECTION B-B

See Note 5

MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
16 mm (5/8") ϕ hex head bolt with hex nut and two washers. Do not attach rail elements to wood blocks or wood post.
135 mm x 185 mm (5/4" x 7 1/4") wood post
Steel plate 460 mm x 610 mm x 6 mm (18" x 24" x 1/4")
Steel foundation tube TS 203 x 152 x 4.8 (TS 8 x 6 x 3/8"), 1375 mm (4'-6") length, See Note 12.
See Note 7

SECTION C-C

See Note 5

MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
16 mm (5/8") ϕ hex head bolt with hex nut and two washers. Do not attach rail elements to wood blocks or wood post.
135 mm x 185 mm (5/4" x 7 1/4") wood post
Steel plate 460 mm x 610 mm x 6 mm (18" x 24" x 1/4")
Steel foundation tube TS 203 x 152 x 4.8 (TS 8 x 6 x 3/8"), 1375 mm (4'-6") length, See Note 12.
See Note 7

SECTION D-D

MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
16 mm (5/8") ϕ hex head bolt with hex nut and two washers. Do not attach rail elements to wood blocks or wood post.
135 mm x 185 mm (5/4" x 7 1/4") wood post
Steel plate 460 mm x 610 mm x 6 mm (18" x 24" x 1/4")
Steel foundation tube TS 203 x 152 x 4.8 (TS 8 x 6 x 3/8"), 1375 mm (4'-6") length, See Note 12.
See Note 7

SECTION E-E

MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
16 mm (5/8") ϕ hex head bolt with hex nut and two washers. Do not attach rail elements to wood blocks or wood post.
135 mm x 185 mm (5/4" x 7 1/4") wood post
Steel plate 460 mm x 610 mm x 6 mm (18" x 24" x 1/4")
Steel foundation tube TS 203 x 152 x 4.8 (TS 8 x 6 x 3/8"), 1375 mm (4'-6") length, See Note 12.
See Note 7

SECTION F-F

MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
16 mm (5/8") ϕ hex head bolt with hex nut and two washers. Do not attach rail elements to wood blocks or wood post.
135 mm x 185 mm (5/4" x 7 1/4") wood post
Steel plate 460 mm x 610 mm x 6 mm (18" x 24" x 1/4")
Steel foundation tube TS 203 x 152 x 4.8 (TS 8 x 6 x 3/8"), 1375 mm (4'-6") length, See Note 12.
See Note 7

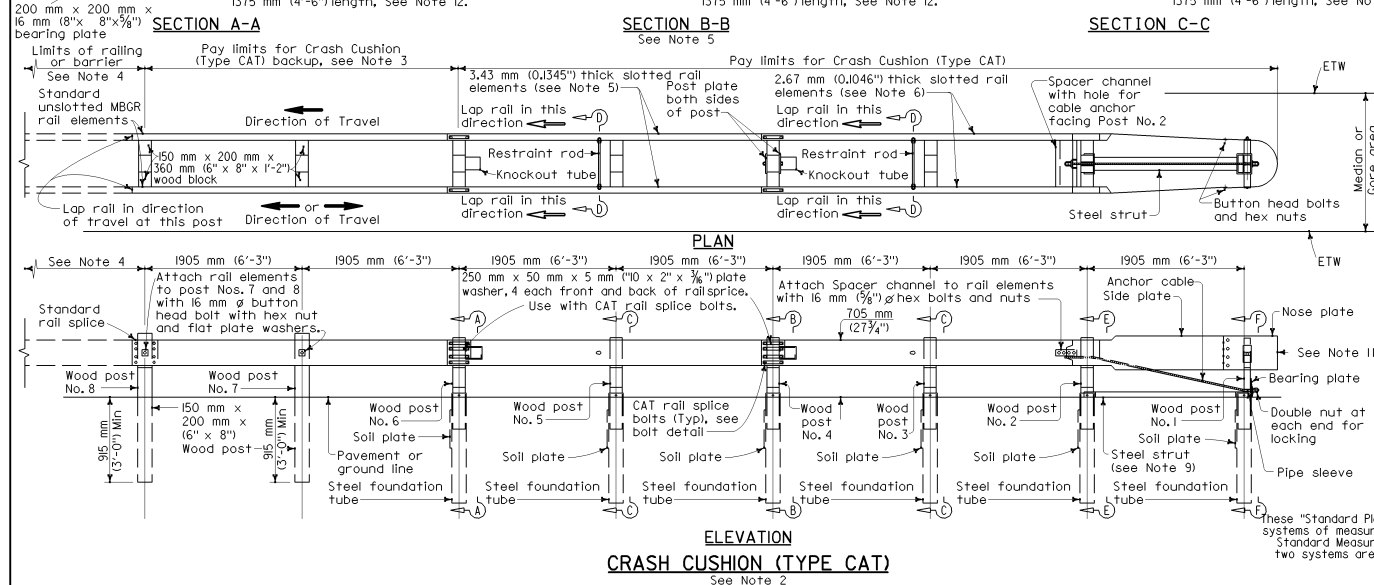
CRASH CUSHION (TYPE CAT)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CRASH CUSHION (TYPE CAT)
These "Standard Plans for Construction of Local Streets and Roads" contain units in two systems of measurement: International System of Units (SI or "metric") and United States Standard Measures shown in the parentheses (). The measurements expressed in the two systems are not necessarily equal or interchangeable. See the "Foreword" at the beginning of this publication.

NO SCALE

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ELEVATION

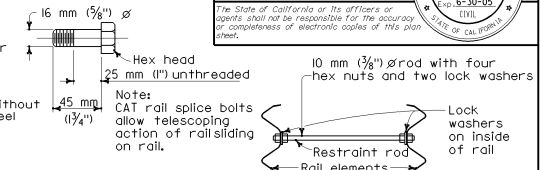
CRASH CUSHION (TYPE CAT)

See Note 2

Caltrans now has a web site! To go to the web site, go to: http://www.dot.ca.gov		DIST	COUNTY	ROUTE	KILOMETER POST	SHEET	TOTAL SHEETS
Ellis K. Hirst REGISTERED CIVIL ENGINEER No. C-17926 Exp. 6-30-05 (TIN)		July 1, 2002 PLANS APPROVAL DATE The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan.					

CAT RAIL SPLICE BOLT

Use at Post Nos. 4 and 6



SECTION D-D

MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
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See Note 7

SECTION E-E

MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
16 mm (5/8") ϕ hex head bolt with hex nut and two washers. Do not attach rail elements to wood blocks or wood post.
135 mm x 185 mm (5/4" x 7 1/4") wood post
Steel plate 460 mm x 610 mm x 6 mm (18" x 24" x 1/4")
Steel foundation tube TS 203 x 152 x 4.8 (TS 8 x 6 x 3/8"), 1375 mm (4'-6") length, See Note 12.
See Note 7

SECTION F-F

MBGR element
Top of rail
Knockout tube, see Note 8.
140 mm x 190 mm x 360 mm (5/2" x 7 1/2" x 1'-2") Wood block
16 mm (5/8") ϕ hex head bolt with hex nut and two washers. Do not attach rail elements to wood blocks or wood post.
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